JCT4A5

Journal of Catalysis

LIBRARY USE ONLY
UNIVERSITY OF HAWAII LIBRARY

EDITORS:

P. W. Selwood — *Frank S. Stone*

EDITORIAL BOARD:

Robert B. Anderson
Michel Boudart
Adalbert Farkas
Vladimir Haensel
J. Halpern
J. Horiuti
Maurice L. Huggins
C. Kemball
A. Nielsen
M. Prettre
G. C. A. Schuit
G.-M. Schwab
Z. G. Szabó
W. Trzebiatowski
Paul B. Weisz
M. E. Winfield

Volume 28 · 1973

ACADEMIC PRESS
New York and London

Copyright © 1973 by Academic Press, Inc.

All Rights Reserved

No part of this publication may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

CONTENTS OF VOLUME 28

Number 1, January 1973

H. S. Gandhi and M. Shelef. The Adsorption of Nitric Oxide on Copper Oxides 1

H. Alt, H. Binder, and G. Sandstede. Mechanism of the Electrocatalytic Reduction of Oxygen on Metal Chelates 8

Thean Chong and J. M. Skaates. Reactivities of Copper-Germanium Alloys in the Direct Synthesis of Dimethyldichlorogermane 20

Walter Goldstein and James J. Carberry. Inter-Intraphase Diffusion Affected Catalytic Yield. The Case Involving Finite External and Internal Area . . 33

G. C. Kuczynski, J. J. Carberry, and E. Martinez. Spheroidization of Silver Ethylene Oxidation Catalyst Particles as Induced by γ-Irradiation 39

D. Pope, D. S. Walker, and R. L. Moss. The Structure and Activity of Supported Metal Catalysts. VII. CO Poisoning and Metal Location in Palladium-Charcoal Catalysts 46

Michèle Breyesse, Michelle Guenin, Bernard Claudel, and Jean Veron. Catalysis of Carbon Monoxide Oxidation by Cerium Dioxide. II. Microcalorimetric Investigation of Adsorption and Catalysis 54

R. C. Luckner, G. E. McConchie, and G. B. Wills. Initial Rates of Propylene Disproportionation Over WO_3 on Silica Catalysts 63

Helmut Knözinger, Karel Kochloefl, and Wolfgang Meye. Kinetics of the Bimolecular Ether Formation from Alcohols over Alumina 69

J. H. Anderson, Jr. The Local Environment of Co(II), Cu(II), and Cr(III) Supported on Silica Gel 76

R. C. Luckner and G. B. Wills. Transient Kinetics of the Disproportionation of Propylene Over a Tungsten Oxide on Silica Catalyst 83

C. C. Chang and R. J. Kokes. An Infrared Study of Isomerization of Acetylenes Over Zinc Oxide 92

Julius Scherzer and Jonathan L. Bass. Infrared Spectra of Ultrastable Zeolites Derived from Type Y Zeolites 101

K. Papadatos and K. A. Shelstad. Catalyst Screening Using a Stone DTA Apparatus. I. Oxidation of Toluene Over Cobalt-Metal Oxide Catalysts . . . 116

Yung-Fang Yu Yao and J. T. Kummer. The Oxidation of Hydrocarbon and CO Over Metal Oxides. I. NiO Crystals 124

Yung-Fang Yu Yao. The Oxidation of Hydrocarbons and CO Over Metal Oxides. II. α-Cr_2O_3 139

L. L. Hegedus and E. E. Petersen. On the Deactivation of Supported Pt Catalysts During the Hydrogenation of Cyclopropane 150

J. B. Moffat and A. S. Riggs. Catalytic Activity and Selectivity of Boron Phosphate in the Decomposition of Ethyl Alcohol Vapor 157

Hong-Chiu Chen and Robert B. Anderson. Studies of a Triply Promoted Ammonia Synthesis Catalyst with an Electron Probe Microanalyzer 161

Notes

Yoshio Takasu and Toshiro Yamashina. Catalytic Activity and Alloy Composition of Clean Surfaces of Copper–Nickel 174

Hans A. Benesi. Determination of Proton Acidity of Solid Catalysts by Chromatographic Adsorption of Sterically Hindered Amines 176

Letter to the Editors

Reiji Mezaki and Norman R. Draper. On the Adequacy of a Multi-Site Model Suggested for the Catalytic Hydrogenation of Olefins 179

Number 2, February 1973

Dennis P. McArthur, Harding Bliss, and John B. Butt. An Experimental Study of Electronic Factors in the Dehydrogenation of Ethanol on Thin Film ZnO 183

Stuart A. Hoenig and Freedoon Tamjidi. Exo-Electron Emission During Heterogeneous Catalysis (the Effect of External Electric Potentials) 200

J. J. F. Scholten, J. A. Konvalinka, and F. W. Beekman. Reaction of Nitrous Oxide and Oxygen with Silver Surfaces, and Application to the Determination of Free-Silver Surface Areas of Catalysts 209

Jeremy B. Halladay and Robert V. Mrazek. Simultaneous Decompositions of Nitrous Oxide 221

V. V. Nikisha, B. N. Shelimov, V. A. Shvets, A. P. Griva, and V. B. Kazansky. Studies of Isotopic Exchange in Molecular Oxygen on Silica-Supported Vanadium Pentoxide at Low Temperatures 230

G. R. Varma and W. F. Graydon. Heterogeneous Catalytic Oxidation of Cumene (Isopropyl Benzene) in Liquid Phase 236

K. Miyazaki. Microfocused X-ray Diffraction Examination of Pt/Al_2O_3 Catalysts Before and After Engine Dynamometer Aging 245

J. M. Cece and R. D. Gonzalez. Studies of Supported Metal Catalysts . . . 254

J. M. Cece and R. D. Gonzalez. Studies of Supported Metal Catalysts. II. The Effect of Dispersion on Methane-Deuterium Exchange Over Supported Nickel 260

Claudio Morterra and M. J. D. Low. V. Sorption of H_2, O_2, CO, and Reaction Mechanisms 265

John Dollimore and Brian H. Harrison. Energetic Nature of Catalyst Surfaces. I. Supported Cobalt on Rutile 275

R. S. Mann and M. K. Dosi. Kinetics of Vapor-Phase Oxidation of Methyl Alcohol on Vanadium Pentoxide-Molybdenum Trioxide Catalyst 282

M. Kobayashi and T. Shirasaki. The Chemisorption of CO on Ruthenium Metals and Ruthenium-Silica Catalysts 289

Vincente Mayagoitia. Errors in the Determination of Specific Surface Area in Transitional Porous Bodies 296

Jin-Liang Wang and H. R. Menapace. Temperature Effects on Metathesis of 2-Pentene by A Binary Catalyst System of Tungsten Hexachloride and *n*-Butyllithium 300

G. W. Pukanic and F. E. Massoth. Kinetics of Mesitylene Isomerization and Disproportionation Over Silica-Alumina Catalyst 304

Robert J. Madix and Alfred Susu. Reactive Scattering of Halogen Molecules from ⟨111⟩ Surfaces of Silicon and Germanium: Comparison with Oxygenic Species 316

K. A. Klinedinst and M. Boudart. Mössbauer Spectroscopy Applied to the Study of a Homogeneous Ziegler-Type Hydrogenation Catalyst 322

Note

Ashok K. Vijh. A Possible Rough Connection Between Aspects of the Balandin and the Volkenishtein Concepts in Heterogeneous Catalysis . 329

Letters to the Editors

B. A. Morrow, L. W. Thomson, and R. W. Wetmore. The C–H Stretching Bands of Methanol Adsorbed on Silica 332

N. Takezawa and H. Kobayashi. On the CH Stretching Bands of Surface Alcoholates Formed on Metal Oxides—A Reply to Morrow, Thomson and Wetmore 335

R. D. Wragg, P. G. Ashmore, and J. A. Hockey. On Oxygen Mobility During Catalytic Oxidations 337

D. Briggs and J. Dewing. Hydrogenation of Ethylene on Supported Platinum 338

Number 3, March 1973

S. V. Gerei, E. V. Rozhkova, and Ya. B. Gorokhovatsky. Propylene and Oxygen Chemisorption on Cupric Oxide and Cuprous Oxide Catalysts 341

Z. W. Wilchinsky, R. W. Looney, and E. G. M. Tornqvist. Dependence of Polymerization Activity on Particle and Crystallite Dimensions in Ball Milled $TiCl_3$ and $TiCl_3 \cdot 0.33AlCl_3$ Catalyst Component 351

M. Primet, J. M. Basset, M. V. Mathieu, and M. Prettre. Infrared Investigation of Hydrogen Adsorption on Alumina-Supported Platinum 368

J. M. Beelen, V. Ponec, and W. M. H. Sachtler. Reactions of Cyclopropane on Nickel and Nickel–Copper Alloys 373

A. Roberti, V. Ponec, and W. M. H. Sachtler. Reactions of Methylcyclopentane on Nickel and Nickel–Copper Alloys 381

T. Van Herwijnen, H. Van Doesburg, and W. A. De Jong. Kinetics of the Methanation of CO and CO_2 on a Nickel Catalyst 391

K. A. Becker, H. G. Karge, and W.-D. Streubel. Benzene Alkylation with Ethylene and Propylene over H-mordenite as Catalyst 403

E. Chornet and R. W. Coughlin. Desorption of Hydrogen from Iron—Influence of the Activity Coefficient of Adsorbed Hydrogen 414

Kenneth Baron and P. W. Selwood. Parahydrogen Conversion and Magnetocatalytic Effects Over Yttria and Lutetia 422

John F. Read. The Decomposition of Nitrous Oxide on Neodymium Oxide, Dysprosium Oxide and Erbium Oxide 428

Y. Amenomiya and G. Pleizier. Chemisorption of Gases on a Promoted Iron Catalyst. I. Hydrogen, Nitrogen, Carbon Monoxide, and Carbon Dioxide . . . 442

P. Forzatti, E. Martinex, G. C. Kuczynski, and J. J. Carberry. Influence of γ Irradiation Upon Catalytic Selectivity. II. The Role of Ca in the Ag Catalyzed Oxidation of Ethylene 455

W. H. Weinberg. A Model Description of the Adsorption and Decomposition of Nitrous Oxide on Clean and Carbon Covered Platinum Surfaces 459

Yutaka Kubokawa, Takehiko Ono, and Norio Yano. Interactions of Oxygen with Olefins Adsorbed on Zinc Oxide 471

H. Topsøe, J. A. Dumesic, and M. Boudart. Alumina as a Textural Promoter of Iron Synthetic Ammonia Catalysts 477

NOTES

J. HABER AND B. GRZYBOWSKA. Mechanism of the Oxidation of Olefins on Mixed Oxide Catalysts 489

A. D. VREUGDENHIL. Mechanism of the Silver-on-Silica Catalyzed Oxidation of Cumene in the Liquid Phase 493

PH. A. BATIST AND S. P. LANKHUIJZEN. Koechlinite. An Active, Selective, and Sensitive Acrylonitrile Catalyst 496

JAMES E. LYONS. Homogeneous Catalytic Hydrogen Transfer in Cyclic Dienes. Selective Double Bond Migration in the Presence of a Ruthenium(II) Complex 500

OLIVER JOHNSON. Classification of Metal Catalysts Based on Surface *d*-Electrons 503

AUTHOR INDEX 506

Subject Index for Volume 28 will appear in the December 1973 issue as part of a cumulative index for 1973.